Invacare® *Spectra Plus Seat Riser*

Power Chair

User Guide

INVACARE

CE

1446685 Spectra Plus Seat Riser UG GB 0605.2.PMD

ISO 7176-15: 1996 Requirements for Information Disclosure, Documentation and Labelling

Manufacturer: Invacare Limited

Address: South Road, Bridgend Industrial Estate, Bridgend. CF31 3PY

Model Designation: SPECTRA PLUS with Seat Riser

Maximum Occupant Mass (Weight): 114kgs

ISO Test Method	Requirement	Min.	Max.	ISO Test Method	Requirement	Min.	Max.
ISO 7176 Pt 5	Overall Length with Legrest	1165mm	1165mm	ISO 7176 Pt 7	Seat Plane Angle	- 3 deg	28 deg
ISO 7176 Pt 5 (ii)	Overall Width	935mm	935mm	ISO 7176 Pt 7	Effective Seat Depth	370mm	484mm
ISO 7176 Pt 5	Folded Length	N/A	N/A	ISO 7176 Pt 7	Effective Seat Width	430mm	480mm
ISO 7176 Pt 5	Folded Width	N/A	N/A	ISO 7176 Pt 7	Seat Surface Height at Front Edge	515mm	960mm
ISO 7176 Pt 5	Folded Height	N/A	N/A	ISO 7176 Pt 7	Backrest Angle	10deg	50deg
ISO 7176 Pt 5	Total Mass (Weight)	93.4kgs	93.4kgs	ISO 7176 Pt 7	Backrest Height	430mm	580mm
C.E.N.	Mass (Weight) of the Heaviest Part	15.4kgs	15.4kgs	ISO 7176 Pt 7	Footrest to Seat Distance	325mm	475mm
ISO 7176 Pt 1	Static Stability Downhill	15deg	31deg	ISO 7176 Pt 7	Leg to Seat Surface Angle	114deg	114deg
ISO 7176 Pt 1	Static Stability Sideways	13deg	21deg	ISO 7176 Pt 7	Armrest to Seat Distance	180mm	305mm
SO 7176 Pt 4	Energy Consumption (Range)	18km	18km	ISO 7176 Pt 7	Front Location of Armrest Structure (Front Armrest to Backrest)	N/A	N/A
ISO 7176 Pt 2	Dynamic Stability Uphill	6°	6°	ISO 7176 Pt 7	Handrim Diameter	N/A	N/A
ISO 7176 Pt 10	Obstacle Climbing	40mm	105mm	ISO 7176 Pt 7	Horizontal Location of Axle	61mm	175mm
ISO 7176 Pt 6	Maximum Speed Forward	6.1km/h	6.1km/h	ISO 7176 Pt 5	Minimum Turning Radius	950mm	950mm
ISO 7176 Pt 3	Minimum Braking Distance from Maximum Speed	1150mm	1150mm	ISO 7176 Pt 5	Turn Around Width Between Limiting Walls	1270mm	1270mm

Mass of the test dummy used in the test: 114kgs

The wheelchair conforms to the following standards:

The Wheelchair conforms to the following standards:

ISO 7176 Pt 8	Static, Impact and Fatigue Strength	PASS
ISO 7176 Pt 9	Climatic Tests	PASS
ISO 7176 Pt 14	power and Controls	PASS
ISO 7176 Pt 16	Resistance to Ignition	PASS

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SAFETY PRECAUTIONS WHEN OPERATING THE SEAT RISER

Before using your seat riser, please read and understand the following safety precautions:

NOTE
When the seat is in it's raised position, the drive speed is restricted.

- The seat riser must be only used on smooth, level surfaces.
- Always wear the seat belt provided while in the chair, regardless of seating position.
- Do not attempt to drive the wheelchair, while in the raised and tilted back position.
- Do not drive over rough or uneven terrain while the seat is in the raised position.
- Do not attempt to go up or down any slope or incline while in the raised position.
- Leg rests must only be adjusted with the seat riser, in it's lowest position and it's maximum forward tilt position.
- Do not attempt to climb kerbs or any other obstacles while in the raised position.
- Care must be taken within low ceiling buildings and doorways, while in the raised position.
- Do not attempt to transfer from the chair while raised.
- Prior to lowering care must be taken that no obstacles have been placed under the seat mechanism.
- When using the seat riser mechanism, take extra care to ensure that all body parts are clear of the space under the seat, especially the seat riser frame moving parts.
- All other safety precautions, are contained in the user guide, and must be adhered too.

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Warranty Terms & Conditions

Standard INVACARE terms

This is to certify that your Spectra Plus Seat Riser power chair is warranted by INVACARE Ltd., for a period of 1 year.

1. Only INVACARE chairs purchased at full price are warranted against defective workmanship and materials.
2. If a defect or fault is discovered the INVACARE dealer from whom the appliance was obtained should be notified immediately.
3. The manufacturer will not accept responsibility for damage caused by misuse or non-observance of the instructions set out in the users manual.
4. During the period of the Warranty, any parts that have become defective due to faulty workmanship or materials, will be renewed or repaired without charge by the INVACARE dealer.
5. The Warranty will be forfeited should any unauthorised alteration be made to the equipment.
6. The Purchaser's statutory rights under the Consumer Protection Act are not affected.

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Limitation of liability

This Warranty does not extend to the consequential costs resulting from fault clearance, in particular freight and travel costs, loss of earnings, expenses etc.

- natural wear and tear
- inappropriate or incorrect use
- defective assembly or setting-up by the purchaser or third parties
- defective or neglectful treatment
- use of unsuitable spares

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Contacting

For questions or support, please contact your authorised INVACARE Dealer. He has the necessary know-how and equipment plus the special knowledge concerning your wheelchair which enables him to offer you all-round satisfactory service.

Should you wish to contact us directly, we are at your service under the following addresses and phone numbers.

United Kingdom

INVACARE Ltd.
South Road Bridgend Mid Glamorgan - CF31-3PY
Tel (Customer Service): 01656 - 647 327 Fax (Customer Service): 01656 - 649 016

France

INVACARE POIRIER S.A.
Les Roches F-37230 Fondettes
Tel (Service Après-Vente): 02 47 - 62 64 15 Fax (Service Après-Vente): 02 47 - 62 64 64

Deutschland, Österreich, Switzerland & Eastern Europe

INVACARE Deutschland GmbH
Kleiststraße 49 · D-32457 Porta Westfalica
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The Netherlands

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NL-6716 BZ Ede
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Sverige

INVACARE AB
Phone or Fax INVACARE Ltd for current address.

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Tel. 0972 - 49 32 00 Fax: 0972 - 49 32 20

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Mecc San S.R.L.
Via Dei Pini, 35 I - 36016 Thiene (VI) - Italia
Tel: 0445 - 380059 Fax: 0445 - 380034

Portugal

INVACARE PORTUGAL Lda
Rua Senhora de Campanhâ, 105 4369-001 Porto - Portugal
Tel. 02 - 510 57 39 Fax: 02 - 510 50 20

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1 Introduction

Dear User

First of all we wish to thank you for your confidence in our products! We hope you will enjoy your new power chair.

This manual contains important hints and information on Spectra Plus Seat Riser Power Chair:

Familiarise yourself thoroughly before making your first trip.

The information contained in this document is subject to change without notice.

As a manufacturer of wheelchairs, Invacare endeavours to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection.

Do not operate this equipment without first reading and understanding this manual. If you are unable to understand the warnings, cautions, and instructions, contact your dealer otherwise injury or damage may result.

The initial set up of this wheelchair must be performed by a qualified technician.

Procedures other than those described in this manual **must** be performed by a qualified technician.

NOTE:
Not all of the components within this manual will necessarily be available with your Spectra Plus Seat Riser power wheelchair. This manual is a multinational operator's manual and any references not applicable to your product should be ignored.

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1.1 Important symbols in this manual

WARNING: THIS SYMBOL WARNS YOU OF DANGER!

- *Follow the instructions to avoid injury to the user or damage to the product!*

NOTE:

This symbol indicates hints and suggestions which should help make operating the product easier and point out special functions.

Requirements:

- This symbol indicates a list of the different tools and other requirements you will need to do certain maintenance work.

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1.2 Type classification and area of use

The Spectra Plus Seat Riser Power Wheelchair is a Class 2 vehicle with a maximum speed of 4mph (6.4km/h) for use only on pavements, footpaths, pedestrian zones and areas free from motor traffic. It is not allowed on the highway except for the purpose of crossing.

WARNING:

- *Under no circumstances must the top speed of the Class 2 Spectra Plus be increased, to do so will infringe Road Traffic Act Regulations.*

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2 Safety Notes

2.1 Repair or service information

Setup of the Electronic Control Unit is to be performed ONLY by individuals certified by Invacare. The final tuning adjustments of the controller may affect other activities of the wheelchair. Damage to the equipment could occur under these circumstances. If non-certified individuals perform any work on these units, the warranty is void.

2.2 General safety notes

GENERAL WARNINGS

- *Performance adjustments should only be made by professionals of the healthcare field or persons fully conversant with this process and the driver's capabilities. Incorrect settings could cause injury to the driver, bystanders, damage to the chair and to surrounding property.*
- *After the wheelchair has been setup, check to make sure that the wheelchair performs to the specifications entered during the setup procedure. If the wheelchair does NOT perform to specifications, turn the wheelchair OFF immediately and re-enter setup specifications. Repeat this procedure until the wheelchair performs to specifications.*
- *Always remember to use a safety belt when operating the wheelchair outdoors.*
- *DO NOT traverse slopes greater than 6°.*
- *Take care when using your powerchair on slopes of up to 1 in 5 (11% gradient). Refer to section 3 - Negotiating Slopes/Gradients*
- *Take special care in bad weather. Braking and tyre grip may be affected on wet or icy surfaces, take care on slopes and uneven surfaces.*

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- *DO NOT attempt to drive across slopes, which may make the vehicle unstable, increasing the possibility of an accident and possible personal injury.*
- *DO NOT attempt to drive over curbs or obstacles greater than 100mm (4in) in height. Doing so may cause your wheelchair to turn over and cause bodily harm or damage to the chair.*
- *Always stop before climbing an obstacle. Approach slowly until castors contact the obstacle. Weight is transferred to the drive wheels providing traction and motor strength to power the chair over the obstacle.*
- *DO NOT use parts, accessories, or adapters other than those authorized by Invacare.*
- *DO NOT stand on the frame of the wheelchair.*

TYRE PRESSURE

- *DO NOT use your wheelchair unless it has the proper tyre pressure (P.S.I.). DO NOT overinflate the tyres. Failure to follow these suggestions may cause the tyre to explode and cause bodily harm. The recommended tyre pressure is listed on the side wall of the tyre.*

BATTERIES

- *The warranty and performance specifications contained in this manual are based on the use of deep cycle gel cell batteries. Invacare strongly recommends their use as the power source for this unit.*
- *Carefully read battery/battery charger information prior to installing, servicing or operating your wheelchair.*

ELECTRICAL

- *Extreme care should be exercised when using oxygen in close proximity to electrical circuits. Contact your oxygen supplier for instructions in the safe use of oxygen.*

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RAIN TEST

- *INVACARE has tested its power wheelchairs in accordance with ISO 7176 Part 9 “Rain Test”. This provides the end user or his/her attendant sufficient time to remove his/her power wheelchair from a rain storm and retain wheelchair operation.*
- *DO NOT leave power wheelchair in a rain storm of any kind.*
- *DO NOT use power wheelchair in a shower or leave it in a damp bathroom while taking a shower.*
- *DO NOT leave power wheelchair in a damp area for any length of time.*
- *Direct exposure to rain or dampness will cause the chair to malfunction electrically and mechanically and may cause the chair to rust prematurely.*
- *Check to ensure that the battery covers are secured in place.*
- *DO NOT use the joystick if the boot is torn or cracked. If the joystick boot becomes torn or cracked, replace IMMEDIATELY.*

WEIGHT TRAINING

- *Invacare DOES NOT recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have NOT been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, Invacare shall NOT be liable for bodily injury and the warranty is void.*

WEIGHT LIMITATION

- *The SPectra Plus has a maximum user weight limitation of 114kg (18stone).*

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2.3 Safety information on electromagnetic interference

This electric vehicle was successfully tested in accordance with international standards as to its compliance with Electromagnetic Interference (EMI) regulations. However, electromagnetic fields, such as those generated by radio and television transmitters, and cellular phones, can influence the functions of electric vehicles. Also, the electronics used in our vehicles can generate a low level of electromagnetic interference, which however will remain within the tolerances permitted by law. For these reasons we ask you to please observe the following precautions:

WARNING: DANGER OF MALFUNCTION DUE TO ELECTROMAGNETIC INTERFERENCE!

- *Do not switch on or operate portable transceivers or communication devices (such as radio transceivers or cellular phones) when the vehicle is switched on!*
- *Avoid getting near strong radio and television transmitters!*
- *In case the vehicle should be set in motion unintentionally or the brakes are released, switch it off immediately!*
- *Adding electrical accessories and other components or modifying the vehicle in any way can make it susceptible to electromagnetic interference. Keep in mind that there is no sure way to determine the effect such modifications will have on the overall immunity of the electronic system!*
- *Report all occurrences of unintentional movement of the vehicle, or release of the electronic brakes to the manufacturer!*

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2.4 Safety precautions/safe operation

IMPORTANT WARNING

- *The day-to-day activities and the more advanced power chair techniques depend, on your physical capabilities and your own specific circumstances. Our recommendations may occasionally differ from those of your Therapeutic Adviser or Physician, as they have a better understanding of your abilities. Where this is the case, you MUST FOLLOW THEIR advice, they are better placed to tell you what is suitable for you and what is not.*
- *DO NOT use your power chair when your driving ability is impaired by medication or alcohol.*

CAUTION

- *Avoid using your power chair on rough ground or in adverse weather conditions (snow or ice), always steer clear of obstacles where possible, ensure your clothing and hands are kept clear of all moving parts, ask for assistance when descending or ascending steep gradients. Never attempt to negotiate stairs. Never use an escalator to move a power chair between floors. Due to both the weight of a power chair and its occupant it is not advisable to attempt to be assisted up and down stairs whilst the power chair is occupied.*
- *If you are a user with limited mobility we advise that in the case of adverse weather conditions i.e. extreme cold, DO NOT attempt a journey without an accompanying attendant. In the event of a power failure you could become stranded in an isolated area, where there is the strong possibility you will be unable to get immediate assistance.*
- *Braking of your power chair is dependent on electromagnetic motor brakes. When these are disengaged by declutching the motor gear box drive system, the chair is in freewheel mode, this mode is for emergency use only and motor gear boxes should remain engaged at all other times.*
- *To avoid the power chair freewheeling, special care must be taken to engage motor brakes.*

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SAFETY INDOORS

- *When using your power chair indoors always consider the following potential hazards:*
- *Beware of the fact that many of the premises where you are likely to use your power chair may not have been designed with this consideration in mind. You should therefore have an awareness for safety when encountering the likes of narrow doorways, steps, high surfaces, protruding wall fittings and every day household items such as children's toys, electrical appliances etc. Take extra care in kitchen environments.*
- *Consider the fire evacuation procedures for buildings you may be entering. Never put yourself at risk and ensure that you can be easily evacuated in the event of an emergency.*

NOTE

power chairs drive very quietly, generally travel faster than the average walking pace and are low to the ground. Always consider these factors when using your powered Wheelchair in busy pedestrian areas.

COPING WITH EVERYDAY OBSTACLES

- *Coping with the irritation of everyday obstacles can be alleviated somewhat by learning how to manage your wheelchair. Keep in mind your centre of gravity to maintain stability and balance.*
- *DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.*
- *Also, be aware of detachable parts such as armrests or legrests. These must NEVER be used for hand-hold or lifting supports, as they may be inadvertently released, resulting in possible injury to the user and/or assistant(s).*
- *When learning a new assistance technique, have an experienced assistant help you before attempting it alone.*

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SAFETY/HANDLING OF WHEELCHAIRS

- *Use this information only as a “basic” guide. The techniques that are discussed on the following pages have been used successfully by many.*
- *Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. Invacare recognises and encourages each individual to try what works best for him/her in overcoming environmental obstacles that they may encounter, however ALL WARNINGS and CAUTIONS given in this manual MUST be followed. Techniques in this manual are a starting point for all new wheelchair user and assistant with “safety” as the most important consideration for all.*
- *The operational speed of the Power chair will automatically be reduced to the minimum setting 1, when the chair is operated while the seat is in raised position.*

WARNING

- *Do not operate the Seat Tilt or Seat Raise mechanisms repeatedly as this may exceed the duty cycle (working/pause ratio) of the actuators.Overheating of the motors could occur resulting in permanent damage to the units.*

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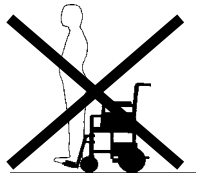
3 Some Useful Tips

Before you venture off on your first journey, ensure that everything is adjusted to your specific needs, read this manual to familiarise yourself with the product and its functions. DO NOT attempt to drive without attendant on hand until you are fully proficient in using and manoeuvring your power chair.



Ensure power is switched off before entering or leaving your power chair. Before switching on, check that both motors are engaged, tyres are inflated to the correct pressure and are in good condition. When on the move DO NOT attempt turns at full speed, especially while travelling downhill. Before changing from forward to reverse, and vice versa, you must stop, failure to do so will cause severe damage to the electronics. DO NOT use your power chair beyond its limitations. Due to both the weight of a powered Wheelchair and its occupant it is not advisable to attempt to be assisted up and down stairs whilst seated.

When entering or leaving your power chair, DO NOT stand on the footplates.

If you have to brake in an emergency, release the joystick. DO NOT switch off power while the power chair is moving, it would cause an abrupt, sharp stop.

DO NOT use your power chair beyond the limitations set out in this manual concerning kerb height, gradients, etc.

Stability and Balance

To ensure stability and safe control of your power chair you must at all times maintain proper balance. The power chair is designed to remain stable and upright during normal use, so long as you do not move your centre of gravity outside the normal seating position.

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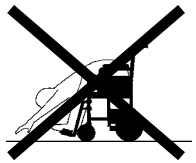
REACHING - BENDING FORWARD

- *Ensure power is OFF. DO NOT lean your body forward out of the power chair further than the length of the armrests.*
- *DO NOT attempt to pick up objects from the floor by bending forward and reaching between your knees.*
- *DO NOT attempt to reach objects by sliding forward to the edge of the power chair seat.*



REACHING - BENDING BACKWARDS

- *Again ensure power is switched OFF.*
- *DO NOT reach back any further than your arm will extend without changing your sitting position.*
- *DO NOT lean over the top of the backrest as it will shift the centre of gravity, risking tipping over.*
- *DO NOT hang heavy loads or objects on the backrest. They may make the power chair unstable, especially on an incline.*

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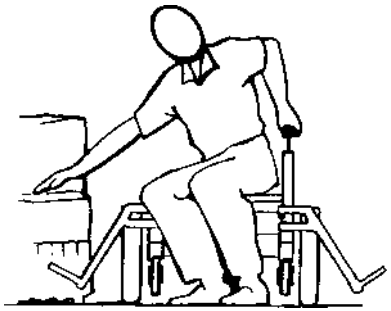
TRANSFERRING TO AND FROM OTHER SEATS

- *ALWAYS turn the wheelchair power OFF and engage the motor locks/clutches to prevent the wheels from moving BEFORE attempting to transfer in or out of the wheelchair. Also, make sure every precaution is taken to reduce the gap distance by turning both rear castors away from the object you are transferring onto.*
- *When transferring, position yourself as far back as possible in the seat. This will prevent broken screws, damaged upholstery and the possibility of the wheelchair tipping forward.*
- *Note: This activity may be performed independently provided you have adequate mobility and upper body strength.*
- *Position the wheelchair as close as possible along side the seat to which you are transferring, with the rear castors pointing away from it.*
- *Engage motor locks/clutches.*
- *Shift body weight into seat with transfer.*
- *During independent transfer, little or no seat platform will be beneath you. Use transfer board if at all possible.*



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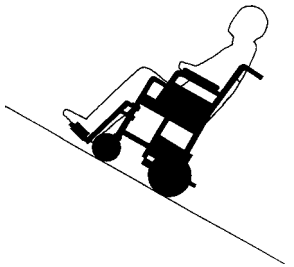
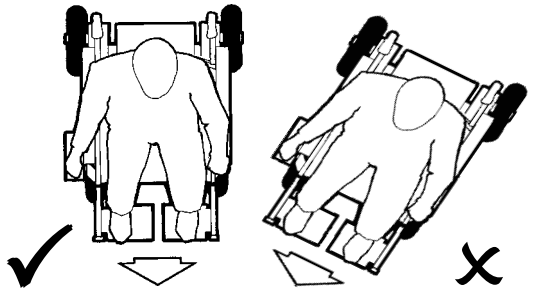
NEGOTIATING GRADIENTS/SLOPES

- *Never attempt to climb or descend an incline where the surface is rough, wet or slippery (gravel, loose chippings, grass, rain, black ice, snow etc.).*
- *If you are in a situation where by the power chair fails to climb a ramp and stalls midway through the manoeuvre, DO NOT attempt to turn the power chair to drive back down in a forward facing direction, always reverse slowly in a steady, flowing action and DO NOT brake harshly, as this will upset balance in this situation. If possible, always seek the assistance of an attendant.*



NEGOTIATING KERBS

- *When approaching kerbs wherever possible mount and dismount pavements via ramps. Always approach the kerb head on, not at an angle.*



Direction of Travel

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YOU, YOUR POWER CHAIR AND OTHERS

- *power chairs are strictly forbidden on motorways and their use is strongly discouraged on highways with fast moving traffic.*
- *On the Pavement, in Pedestrian Zones or in Supermarkets it is obvious that you must show as much consideration and common sense to others as you expect from them.*
- *When you cross the carriageway of a public road take extra care and allow time to cross, observe the Highway code. Although you are not required by law to hold a driving license, you are responsible and fully liable for proper operation. An important fact to bear in mind is that you must not present a traffic hazard even in the event of a breakdown. The most common cause may be discharged batteries. It is important to keep the batteries in a fully charged condition, we can only repeat this warning at this stage. If you do suffer a breakdown for whatever reason, you should immediately: seek the assistance of a passer-by. Explain where to find the motor disengagement/declutching lever, ask him/her to switch to freewheel, so that the power chair can be pushed by hand and moved. When in a safe place always ensure motor gear boxes are re-engaged.*

SAFEGUARDING OTHERS

- *If there are children in your family or household, keep the power chair away from them. It is not intended to be used as a toy. It isn't just about safeguarding the power chair, it is also about protecting others and yourself from injury.*
- *Finally, we want you to get the most out of your INVACARE power chair, ensuring that the safety of yourself and others is never in jeopardy. If you are in any doubt about safe techniques, handling or care of the power chair, contact a recognised expert before putting yourself and others at risk.*

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4 Safety Inspection Checklist

Initial adjustments should be made to suit personal body structure/user capability and preference. Thereafter follow these maintenance procedures:

	Initially	inspect/ adjust weekly	inspect/ adjust monthly	inspect/ adjust periodically
General				
Wheelchair rolls straight (no excessive drag or pull to one side).	X			X
Motor brushes & motor gearbox coupling				X
Clothing guards				
Ensure all fasteners are secure.	X			X
Arms				
Secure but easy to release; adjustment levers engage properly.	X			X
Adjustable height arms operate and lock securely.	X			X
Armrests				
Inspect for rips in upholstery.	X			X
Arm rest pad sits flush against arm tube.	X			X

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	Initially	inspect/ adjust weekly	inspect/ adjust monthly	inspect/ adjust periodically
Seat and back upholstery				
Inspect for rips or sagging.	X			X
Drive wheels				
Axle nut and wheel mounting nuts are secure.	X		X	X
No excessive side movement or binding when lifted and spun when disengaged (free-wheeling).	X			
Castors				
Inspect wheel/fork assembly for proper tension by spinning castor; castor should come to a gradual stop.	X	X		
Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.	X	X		
CAUTION: As with any vehicle, the wheels and tyres should be checked periodically for cracks and wear, and should be replaced.				
Castor/wheel/fork/head tube				
Ensure all fasteners are secure.	X	X		

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	Initially	inspect/ adjust weekly	inspect/ adjust monthly	inspect/ adjust periodically
Tyres				
Inspect for flat spots and wear.	X	X		
If pneumatic tyres check for proper inflation.	X	X		
CAUTION: As with any vehicle, the wheels and tyres should be checked periodically for cracks and wear, and should be replaced.				
CLEANING				
Clean upholstery and armrests.	X			X

NOTE:
Every six (6) months take your wheelchair to a qualified dealer for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

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4.1 Troubleshooting - mechanical

Chair Veers Left/Right	Sluggish Turn/ Performance	Castors flutter	Squeaks and Rattles	Solutions
X	X	X		If pneumatic, check tyres for correct and equal pressure.
X	X	X	X	Check for loose stem nuts/bolts.
	X		X	Check that both castors contact ground at the same time.

Looseness In Chair	Chair 3 Wheels	Solutions
X		**If pneumatic, check tyres for correct and equal pressure.**
	X	**Check for loose stem nuts/bolts.**

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4.2 Troubleshooting - electrical

Symptom	Probable Cause	Solutions
Batteries draw excessive current when charging.	Battery failure. Electrical malfunction.	Check batteries for shorted cell. Replace if necessary (PROCEDURE 8). Contact Dealer/Invacare for Service.
Battery indicator flashes the charge level is low - immediately after recharge.	Battery failure. Malfunctioning battery charger. Electrical malfunction.	Check batteries for shorted cell. Replace if necessary (PROCEDURE 8). Contact Dealer/Invacare for Service. Poor connections between charger and wheelchair. Contact Dealer/Invacare.
Battery indicator flashes the charge level is low, too soon after being recharged.	Batteries not charged. Weak batteries.	Have charger checked. Replace batteries if necessary. Contact Dealer/Invacare for Service.
Motor “chatters” or runs irregular.	Electrical malfunction.	Contact Dealer/Invacare for Service.

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Symptom	Probable Cause	Solutions
Only one (1) drive wheel turns.	Electrical malfunction. One motor lock is disengaged.	Contact Dealer/Invacare for Service. Engage motor lock (PROCEDURE 9).
Joystick erratic or does not respond as desired.	Damaged motor coupling. Electrical malfunction. Controller Programmed improperly.	Contact Dealer/Invacare for Service. Contact Dealer/Invacare for Service. Contact Dealer/Invacare for Service.
Wheelchair does not respond to commands. power indicator OFF - even after recharging.	Poor battery terminal connection. Electrical malfunction. Blown Fuse	Clean terminals (PROCEDURE 8). Contact Dealer/Invacare for Service. Replace the fuse in Procedure 10.

NOTE:
For additional troubleshooting information and explanation of electrical symptoms, refer to additional sections in this procedure of the manual.

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4.3 Checking battery charge level

The following “Do’s” and “Don’ts” are provided for your convenience and safety.

Don’ts	Do’s
Don’t perform any installation or maintenance without first reading this manual.	Read and understand this manual and any service information that accompanies a battery and charger before operating the wheelchair.
Don’t make it a habit to discharge batteries to the lowest level.	Recharge as frequently as possible to maintain a high charge level and extend battery life.
Don’t use randomly chosen batteries or chargers.	Follow recommendations in this manual when selecting a battery or charger.
Don’t put new batteries into service before charging.	Fully charge a new battery before using.
Don’t tap on clamps and terminals with tools.	Push battery clamps on the terminals. Spread clamps wider if necessary.
Don’t mismatch your battery and chargers.	Use ONLY a GEL charger for a GEL or sealed battery.

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4.4 Care and maintenance

NOTE:
Have your vehicle checked once a year by an authorised Invacare dealer in order to maintain its driving safety and roadworthiness.

Cleaning the vehicle

When cleaning the vehicle, pay attention to the following points:

- Only use a damp cloth and gentle detergent.
- Do not use any scrubbing agents.
- Do not subject the electronic components to any direct contact with water.
- Do not use high-pressure cleaning devices.

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5 Seat and Backrest Adjustment

Before seating yourself into your powerchair, please make sure it is not switched on. If it is switched on, the battery condition indicator (fuel gauge) will be illuminated.

Seat Depth Adjustment - 3.5cm

The individual fitting of the firm backrest allows the seat depth to be adjusted by 3.5cm. The adjustment, which is usually only done once, is carried out as follows. You will need a large cross-headed screwdriver and a 13mm spanner.

1 Prise off plastic cap at point A, unscrew and remove the screw and nut, repeat each side.

2 Move the backrest mounting bracket backwards to the extended position. Replace the nut and screw into the selected hole and firmly fasten, replace plastic cap, repeat each side.

WARNING:
It should be noted that under certain conditions, and configurations of the wheelchair, i.e. for users with limited / no lateral body control, and with the backrest in the reclined position, there is the potential to create a body trap between the armrest / sidepanel and the backrest.

Suitable accessories are available from Invacare (lateral trunk supports) to eliminate this risk.

Firm Backrest Angle Adjustment (where applicable)

The backrest angle can be adjusted from 90° (degrees) rearwards through 12°. The adjustment, which is normally only done once, is carried out in the following sequence (see diagram) with the aid of a 13mm spanner and the cross-headed screwdriver. Do the same adjustment for both sides.

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1 Release the lock nut at point (B) located on the cross-head screw.

2 Partially unscrew the locking hand-wheel (C) anti-clockwise.

3 Screw the cross-head screw at point (B) in or out to give the desired backrest angle position.

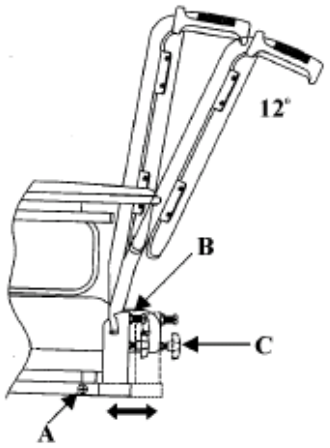
4 Position the lock nut up to the backrest mounting bracket and fully tighten.

5 Re-tighten the hand-wheel (C) fully, ensure the backrest assembly is secure.

Note:
Each backrest tube must be positioned in the same plane as the other or the backrest will be twisted.

To enable the chair to be more portable, the backrest can be either folded down or detached from the wheelchair base.

Follow these simple instructions:-



1 Unscrew the locking hand-wheel (C) approximately five full turns. Lift the backrest upwards and then fold forwards onto the seat.

2 To detach, unscrew the locking hand-wheel (C) an additional three full turns. Do not loosen the cross-head screw.

3 Push the backrest slightly forward and lift upwards.

4 To re-locate the backrest, ensure the pins align into the slots of the hinge bracket, fully re-tighten the locking hand-wheels (C) on both sides.

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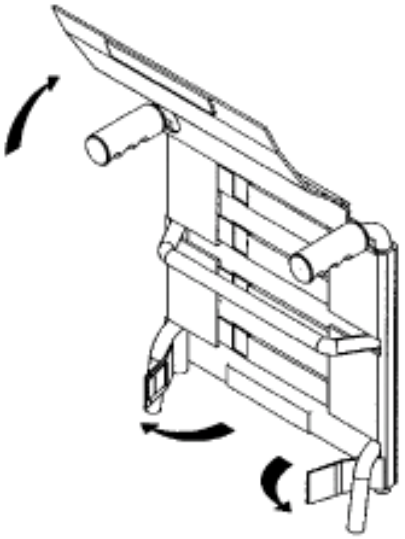
5.1 Tension Adjustable Backrest

The backrest upholstery tension can be adjusted to achieve the desired comfort for individual user requirements. To achieve this, lift the backrest upholstery cover by peeling the Velcro fastening and fold clear. Adjust the individual tension straps to the occupant's comfort. Ensure the straps are correctly positioned and replace the backrest cover, attaching securely by the Velcro fastening.



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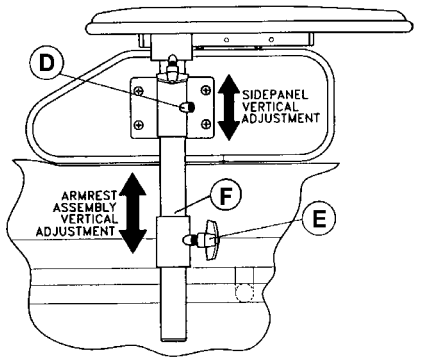
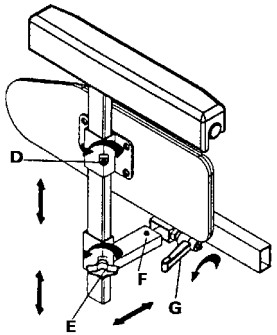
6 Armrest Adjustment



The armrest can be pre-set for height by positioning the self-tapping screw (F) in one of the holes in the armrest tube. To adjust the height of each armrest, first release the locking lever (E) which clamps the arm tube, while holding onto the armrest. Move the armrest to the desired height position, re-tighten the locking wing screw (E). The locking lever (if fitted) can be re-positioned without losing the clamping pressure, pull the lever slightly outwards and turn to a more suitable locating angle.

The padded side panel can also be set to a desired height. Loosen the slotted screw (D) located in the fixing bracket, re-tighten when desired position is achieved.

The transverse width adjustment is achieved by releasing locking lever (G) and positioning the armrest tube to width required and re-tightening locking lever (G). To remove the transverse width adjustment armrest assembly complete to allow removal of the front battery box/controller assembly: remove seat, release locking lever (G), depress spring button lock (F) and withdraw complete armrest unit sideways. The battery box assembly can now be lifted as per instructions.



NOTE:
When re-assembling to chair always ensure the spring button lock (F) is on the inside of the horizontal mounting tube of the sideframe to prevent accidental dismantling of armrest unit.

CAUTION:

The armrests are not intended for carrying the wheelchair.

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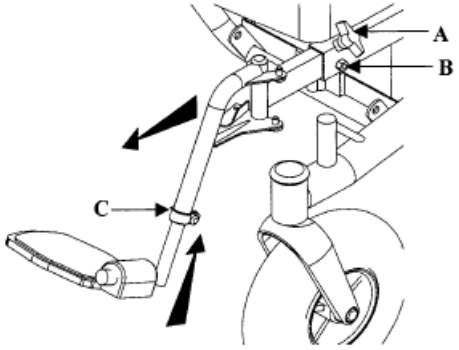
7 Footrests

REMOVAL - Standard

Release winged screw A and slide the complete assembly from the seat frame. Ensure the winged screw is fully tightened when the footrest assembly is replaced.



Removal (swing away)

Release the locking lever, swing footrest to the side, or lift up and off. Do this before sitting in the chair.

Adjustment

To extend the footrest laterally, release the winged screw A, pull the footrest forward, re-tighten when the desired position is achieved. It is not necessary to release the grub screw B. This should remain permanently in position.

To adjust the footrest length, loosen the hex nut C on the extension tube, use a twisting motion when sliding the telescopic tube in and out. Be sure to re-tighten the nuts securely when the desired height is achieved.

CAUTION

- *The lowest part of the footplate must be at least 6cm from the ground for clearance. Never stand on the footplates. If the weight of the body is placed on the footplates, the chair will tip forward.*

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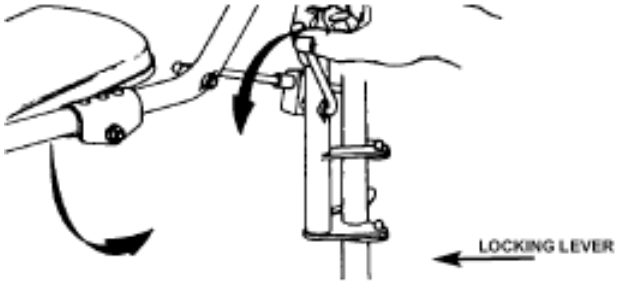
- *When using the lift facility, ensure that footrests are removed from the chair.*
- *It is recommended that both footrests are firmly locked into place when seated in the chair, (particularly when driving the chair). Failure to do so may result in personal injury.*

Elevating Legrests

To raise or lower, release the lock by moving the lever forward as shown.

When lowering the legrest, support the weight of user's leg then release the lock, keep it from dropping too quickly. Keep in mind that the lowest part of the footplate must be 6cm (2") from the ground.



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8 Pushing the Chair

The powerchair supplied is fitted with the lever dis-engage type motor. To dis-engage the drive to allow the chair to be pushed the following instructions should be followed carefully:-

To dis-engage the drive to allow the chair to be pushed, operate the levers to the unshaded position shown in the diagram. LEVERS POINTING OUTWARDS.

To re-engage the chair to the drive position, operate the levers to the shaded position shown in the diagram. LEVERS POINTING INWARDS.

Push the chair slightly forwards to ensure that both motors are fully in the drive position.

CAUTION

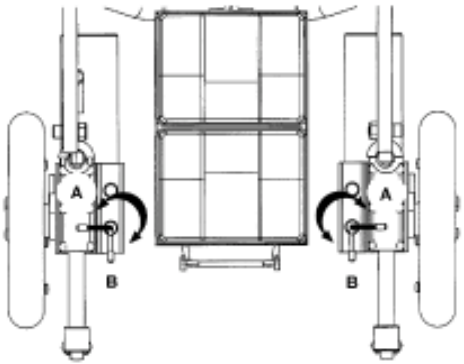
- *When the drive is dis-engaged there are no brakes, unless the wheel-locks (if fitted) are applied. Before leaving the chair always re-engage the drive on both sides. On no account dis-engage the drive when the chair is occupied, unless being pushed by an attendant.*

Remember, operating the dis-engage on an incline will cause the chair to roll away.

WARNING - EMERGENCY FREEWHEEL DEVICE

- *Always re-engage the emergency freewheel device after use. Failure to do so may result in injury.*

Disengage levers shown in the drive position.



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9 Controls and Operating your Power Chair

For detailed description of joystick operation, refer to the Operating Manual supplied with the joystick.

NOTE
Before you start using your power chair you must boost the battery charge by carrying out charging procedures as described in "Battery Charging" and always check the following:

1. Freewheel is engaged in drive Position.
2. Adjustments have been made to suit your individual needs and fasteners securely tightened.
3. Tyres are in good condition and correctly inflated. Or as specified on the Tyre Side Walls.
4. Check the operation of all controls (lights and indicators if fitted) and they function correctly.

9.1 Operation

When seated in your power chair, press the ON/OFF Switch. The light switch will come on and should be steady. All ten lights' of the Battery Charge Indicator are also on, confirming that batteries are fully charged. In the Drive Mode Display Window a figure between 1 and 5 will appear. In Drive Mode 1 speed and acceleration are very slow. In Drive Mode 5 the power chair will reach maximum speed and acceleration. Each time you press the UP selector key you will see in the window the next higher number, and each time you press the DOWN selector key you will see the next lower figure. In this way you can select any intermediate drive mode between very low speed and acceleration and maximum speed and acceleration, whichever suits best the given conditions in which you drive and which you prefer at the time. As already indicated, the electronic controller of your power chair is programmable. It means the way in which the power chair behaves in any of these five drive modes can be changed and adjusted according to your requirements and wishes. Contact your INVACARE supplier/dealer.

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10 Operating your Powerchair Outdoors

NOTE:
Always remember to use the safety belt when operating the chair outdoors.

Ensure footrests are locked into position.

10.1 Kerb Climbing - Centre Mounting

An alternative Centre Mount Kerb Climber device may be fitted to the powerchair. Follow the instructions detailed in ‘going up a kerb’, the operation is identical.

Removal

To detach the Centre Mount Kerb Climber for transportation follow these simple instructions. (Please note that left or right hand are identified as though being seated in the chair).

1. Remove the locking pin **A**, while holding the assembly. Push the assembly down to release from the locating bracket.
2. Pull the assembly towards you away from the right hand side retaining socket. The kerb climber is now detached. Stow carefully.

Re-assembly

Locate the assembly into the right hand retaining bracket. Push the assembly up into the left hand bracket and refit the locking pin **A**. Ensure the pin is correctly fitted firmly into place.

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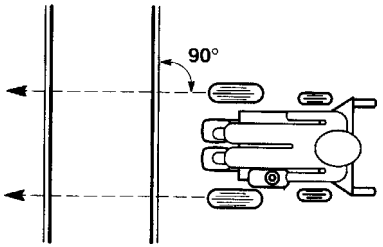
10.2 Going up a Kerb



1. Approach the kerb at 90 degrees.
   Do not charge at the kerb.
2. With the front of the kerb climber at about 2.5cm from the kerb, push the joystick control fully forward and keep it there until climbing is complete - do not pause or attempt to steer during this movement.

You may find that you can climb most kerbs from a standing start. If the kerb climb is un-achievable do not continue the manoeuvre, move away from the obstacle and if possible find an alternative location.

10.3 Going down a Kerb

1. If on a busy road, look out for traffic.
2. Approach the edge of the kerb squarely.
3. Drive forward down the kerb at a moderate speed. Kerbs of 7.5cm or more may tip the chair onto the footplates.

The kerb climbing device will return back to the climbing position after each manoeuvre.

NOTE:
Climbing in excess of 10cm kerbs will be restricted if the footplates are in the fully extended position. The lowest part of the footplate must be at least 6cm from the ground.

Refer to footplate adjustment.

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11 The ACS (Advanced Control System)

11.1 Layout of the Remote (Top SIde)

1) Immobilizer

2) “Activate / scroll through drive mode” button

3) Horn

4) Left-hand indicator

5) Joystick

6) “Activate / scroll through adjustment mode” buttor

7) ON/OFF button

8) Light

9) Right-hand indicator

10) Hazard warning signal flasher

11) Battery charger display

12) Status display (in key symbol)

13) Drive mode display

14) Left-hand indicator display

15) Hazard warning signal flasher display

16) Light display 17) Right-hand indicator display

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Layout of the Remote (Underside)

1) Charger socket

2) Programming socket

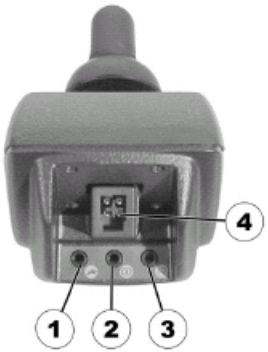
Layout of the Remote (Rear panel)

1) Socket for Buddy button 1 (corresponds to “Activate/scroll through drive mode” button).

2) Socket for Buddy button 2 (corresponds to “ON/OFF” button)

3) Socket for Buddy button 3 (corresponds to “Activate / scroll through adjustment mode” button).

4) Socket for bus cable



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11.2 ON/OFF diode (status display)

NOTE

The ON/OFF diode (in key symbol) also serves as status or error message display. For error codes please see chapter **“Error codes and diagnostic codes”.**

11.3 Battery charger display

- All diodes illuminated:
  Full range
- Only red diodes illuminated:
  Reduced range
- Both red diodes flashing:
  Very low range
- Only one red diode flashing:
  Battery on reserve = Charge batteries straight away

Battery charger display

NOTE

Protection against total discharge: The electronic system automatically shuts actuation down after a certain travel time on reserve battery and the wheelchair comes to a standstill.

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11.4 Activating / deactivating the immobilizer

Activating the immobilizer

- Switch on the remote.
- Use the end of the magnetic key (Invacare® Logo) to move over the sensor area (1) on the remote (key symbol). The horn will sound briefly once. The remote shuts down automatically. The immobilizer is activated.

Deactivating the immobilizer

- Switch on the remote. The status display will flash red slowly.
- Use the end of the magnetic key (Invacare® Logo) to move over the sensor area (1) on the remote (key symbol).

Immobilizer

Magnetic key

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11.5 Using the Buddy buttons with the remote

What is a Buddy button?
A Buddy button is an additional sensing device that can be used to activate a remote function. The sockets for Buddy buttons are to be found at the rear of the remote.

1) Socket 1 (corresponds to the “”Activate / scroll through drive mode”” button).
2) Socket 2 (corresponds to the “ON/OFF” button)
3) Socket 3 (corresponds to the “ Activate / scroll through adjustment mode” button).

11.6 Controlling the wheelchair using the remote

- Switch on the remote (ON/OFF button). The displays on the remote will illuminate. The wheelchair is ready to drive.
- Set the drive level (“drive level“ button see **“Layout of the remote”).**
- Speed stage 1 (slow) to 5 (fast) is shown on the drive level display.

Can the electronic system programming be adapted?
The electronic controller is programmed with standard values during manufacture. Your Invacare® dealer can carry out programming tailored to fit your requirements.

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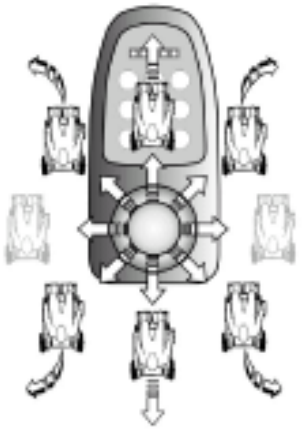
Will the wheelchair not drive after switching on?

Check the drive-away lock (see chapter **"Activating / deactivating the immobilizer ")** and the status bar indicator (see chapter **"ON/OFF diode (status display)"**).

How a wheelchair reacts to joystick movements

Steering is operated by means of a servo motor.



Travel direction

The further the joystick is moved in a particular direction, the more dynamically the wheelchair reacts.

NOTE

To brake quickly, simply let go of the joystick. It will then automatically return to the middle position. The wheelchair will brake.

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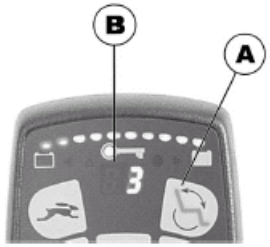
11.7 Operating the electric adjustment options

Electric adjustment options, like electric legrests or an electric backrest, are operated by using the joystick.



Activating adjustment mode

- Press the “activate / scroll through adjustment mode” button (A). The remote switches to the adjustment mode last used. The driving mode display (B) switches to the appropriate symbol (one of the symbols shown below).

Seat tilt

Backrest

Lifter

NOTE

When using the REM 24 SD remote it is not necessary – as on previous remote versions – to push the joystick forward in order to access the adjustment mode. It is sufficient to operate the adjustment mode button just once. If the remote has been programmed appropriately, further modes can be accessed by repeatedly pressing the adjustment mode button, i.e. light mode or ECU mode (environment control unit). The standard REM 24 SD programming only supports the adjustment function. Please speak to your Invacare dealer if you have any questions in this respect.

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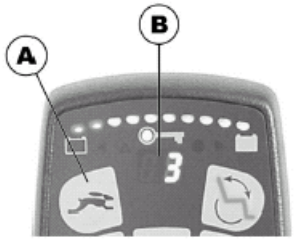
Selecting and operating the adjustment option

- Move the joystick to the left or right = Select adjustment option on the submenu (A).
- Move the joystick forward/backward = Operate adjustment option (B).

Changing back to driving mode

- Briefly press the “Activate / scroll through driving mode” button (A). The remote switches back to the driving mode last used.

  The driving mode display indicates the drive level (B).



WARNING

- *Do not operate the Seat Tilt or Seat Raise mechanisms repeatedly as this may exceed the duty cycle (working/pause ratio) of the actuators.Overheating of the motors could occur resulting in permanent damage to the units.*

WARNING

- *The operational speed of the Power chair will automatically be reduced to the minimum setting when the chair is operated while the seat is in raised position.*

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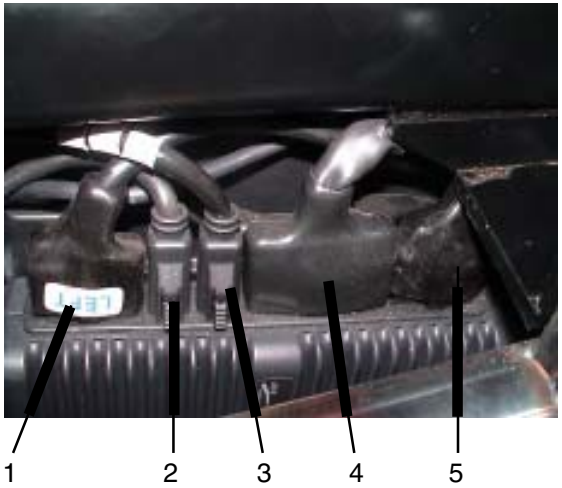
11.8 Power Module

The ACS power module is located on the right hand side of the Batteries and has 5 connector points as listed bellow:

1. Left hand motor
2. CLAM (combined lighting and actuator module)
3. Remote
4. Battery connector
5. Right hand motor.



The top picture shows the connector leads for the ACS Power Module.

The bottom picture is a view of the Power Module, looking inwards from the Left Hand motor and the battery box in the back.

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11.9 CLAM (Combined Lighting and Actuator Module)

The top picture shows a view of the CLAM, located on the right hand side of the batteries box, with the connecting cables fitted.

The bottom picture shows the two different connectors which plug in to the CLAM.

The main connector (15 pin, shown), connects to the CLAM at one end and the two actuators at the other end. It also provides earthing, connecting to the base of the seat riser frame.

The smaller connector, connects to the ACS Power Module, Item 2, shown on the previous page.

The third connector is for the attendant control (when fitted).

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11.10 Error diagnosis

In the event that the electronics should show signs of failure, please consult the following trouble-shooting guide in order to locate the error.

NOTE
Before beginning with the diagnosis, please ensure that the drive electronics are switched on.

If the status display is OFF:
Please check whether the drive electronics are SWITCHED ON.
Please check whether all cables have been connected correctly.
Please ensure that the batteries are not discharged.

If the status display is FLASHING:
Please count the number of flashing sequences and move on to the next section.

If the red diodes on the battery charger display and the status display are FLASHING, Drive mode display shows a horizontal bar:
Battery discharged. Please charge the battery.

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Error codes and diagnostic codes

The drive electronics are capable of rectifying some errors automatically. In this case the status display will cease to flash. Please switch the remote on and off several times. Wait approx. 5 seconds each time before switching the remote on again. If this does not rectify the error, locate the error using the flash codes shown below.

FLASH CODE	FAULT	IMMEDIATE MESSAGE	FURTHER HELP
1	Module Defective	-	Consult Dealer
2	Lifter raised or lowered too far (seat not at driving height)	If the lifter is raised, lower in stages until the status display stops flashing. If lowered too far, raise lifter in stages until the status display stops flashing. If at all possible, only drive when the seat is at driving height.	-
	Accessory Error	-	Consult Dealer
3	Error on right motor. Connection loose/faulty.	Check plug in connectors.	Consult Dealer
4	Error on left motor. Connection loose/faulty or motor faulty.	Check plug in connectors.	Consult Dealer

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FLASH CODE	FAULT	IMMEDIATE MESSAGE	FURTHER HELP
5	Error/brake error on right motor. Connection loose/ faulty or motor faulty.	Check plug in connectors.	Consult Dealer
	Motors uncoupled.	Couple motors. Switch remote OFF and ON again.	-
6	Error/brake error on left motor. Connection loose/ faulty or motor faulty.	Check plug in connectors.	Consult Dealer
7	Battery totally discharged.	Charge battery.	Consult Dealer
8	Battery voltage too high.	-	Consult Dealer
9 or 10	Faulty data transmission between modules.	-	Consult Dealer
11	Motors overstressed.	Switch remote OFF and ON again.	-
12	Compatibility problems between the modules.	-	Consult Dealer

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12 Fault Finding

Remember that most power drive problems are battery related. Sometimes expensive components are unnecessarily replaced when in fact the problem was batteries.

NOTE:
If an electrical problem exists, always check the batteries first, also check cable connections for good contact. The electronics involved in the controller and lift and recline modules are quite sophisticated:- electronic repairs should be carried out by trained personnel.

If your chair will not start

1. Check that the control box is switched ‘on’, the display will be illuminated and remain stationary.
2. Check that both motors are engaged.
3. Check that the main controller cable is firmly pushed ‘home’.
4. Do not move the joystick until the display is illuminated.

If the wheelchair pulls to one side

1. Check that the motors are fully engaged.
2. Check that pneumatic tyres are inflated to correct pressure.
3. Check that the castors move freely, and there is no free play at castor stem.
4. Check joystick drive function is in line with the left and right response. One motor may be unplugged.

NOTE:
If your chair still has a problem after making these checks, please contact your authorised INVACARE dealer.

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13 Transporting your chair in vehicles

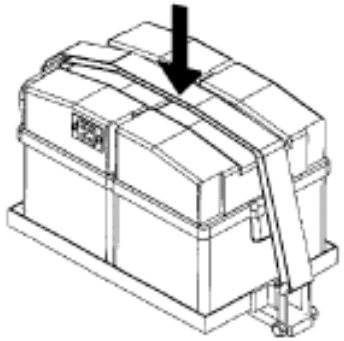
13.1 Recommended restraint methods

NOTE:
For additional information, consult your authorised INVACARE Dealer.

For transportation purposes other than disassembly, the powerchairs may be used in vehicles which have been modified specifically for the purpose. The powerchair must be secured using these recommended restraint methods. Specified crash tests were carried out with the chair restrained facing the front of the vehicle. It is recommended that these guidelines are followed.

The powerchairs are not designed or manufactured to be replacements for purpose built vehicle seating..

- The power chairs are not designed or manufactured to be replacements for purpose built vehicle seating.
- The occupant must be secured to the vehicle separately in addition to any wheelchair restraints. See figure on the facing page.
- Manually operated drive wheel locks must be used whilst the power chair is being transported.
- The figure on the right shows the route of the battery restraint strap and the position of the Velcro fastening.



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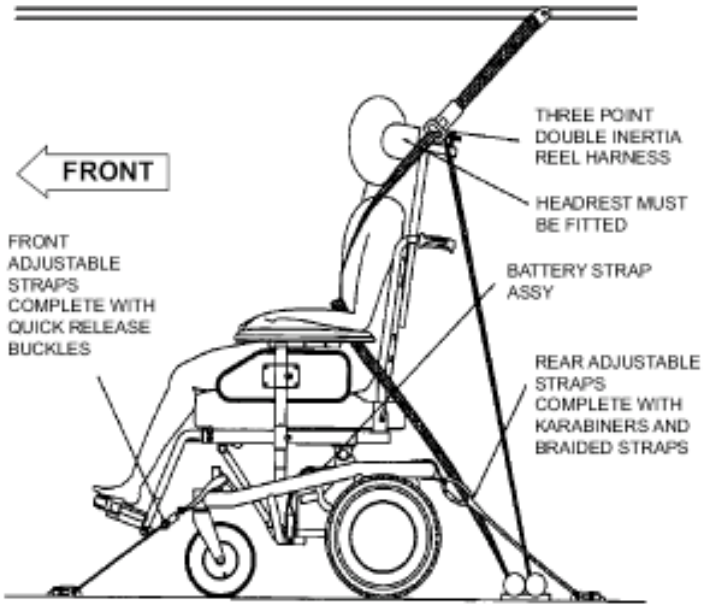
The Power chair was tested to ISO 7176-19 using Unwins Webbing Restraints with Tongue and Buckle Straps. The system comprises of front adjustable straps complete with quick release buckles and rear adjustable straps complete with karabiners and braided straps.

The straps are secured at the specified points shown. Both positions are labelled “TIE DOWN POINT”.

The diagram (Fig. No.2) shows the headrest arrangement, which must be fitted, and the occupant’s inertia seat belt which also must be used.


FRONT
THREE POINT DOUBLE INERTIA REEL HARNESS
HEADREST MUST BE FITTED
FRONT ADJUSTABLE STRAPS COMPLETE WITH QUICK RELEASE BUCKLES
BATTERY STRAP ASSY
REAR ADJUSTABLE STRAPS COMPLETE WITH KARABINERS AND BRAIDED STRAPS

Recommended alternative head-rests may be used without affecting the CE marketing of the power chair, provided a full risk assessment has been carried out by those who have recommended the headrest to be safe for use with the power chair.

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14 Disassembly

To enable the chair to be carried in the boot of most cars, follow these instructions:

1. Disconnect the Motor/Battery connector from the control box and remove the armrests. Release the locking lever.
2. Remove the calf strap from the footrests. This is simply attached by Velcro fastening. Remove the footrests completely by releasing the cam latch situated on the inside of the footrest frame hanger.

CAUTION

- *Do not drive the chair with the footrests in the unlatched position.*

3. Remove the kerb climber assembly (if fitted).
4. Detach the seat and backrest assembly as previously shown. When replacing the seat assembly, ensure the brackets are located correctly on the seat frame tube.
5. Disconnect the motor leads and the connecting cables from the battery boxes. Carefully lift the battery boxes clear of the frame by the straps provided. Remove the battery tray. When refitting the battery tray it is important that it is correctly located on the support pins.
6. Remove the detachable motors as described later on in this User Guide.

The disassembled chair is now ready to be loaded safely in a suitable vehicle. Reversing the procedure will allow the chair to be reassembled at your destination.

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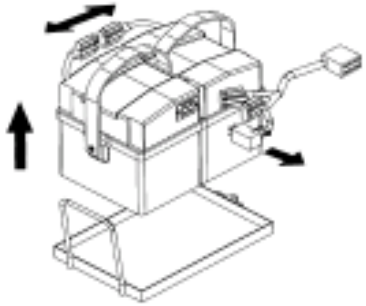
NOTE

Care must be taken when stowing the detached parts for transportation to ensure that no damage occurs, particularly to the motor assemblies and controller units. Due to the weight of the battery boxes, consideration must be given to their secure positioning in the event of emergency braking.



WARNING

- *Extreme care must be taken when lifting the heaviest components, i.e. Battery boxes, Frame and Motor units. Assume the correct lifting position. Seek assistance if in doubt.*

14.1 Detachable motors

For practical purposes and ease of operation, it is advisable to detach the motors as the last component of the chair to be dismantled and to re-attach first.

NOTE

Assistance may be required while this operation is carried out.

1. Unscrew the knurled locking knob A (see figure on the next page). This can be unscrewed completely and still be retained in position.
2. Release the side retaining pin B by turning it 180°.
3. Unbolt clamp C on the vertical frame member.
4. Support the weight of the chair on the side the motor is being detached. Pull the motor assembly towards the back of the chair, take care to hold the motor assembly when it becomes detached. Repeat operation for both sides.

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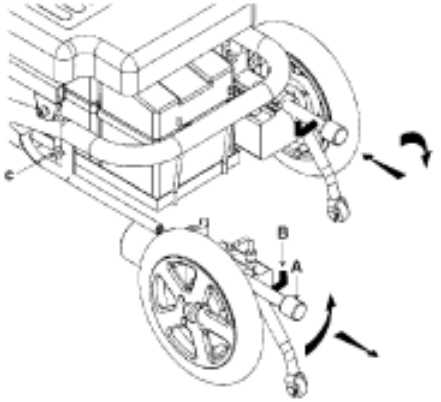
NOTE
Care must be taken when stowing the detached parts for transportation to ensure that no damage occurs, particularly to the brake housing and gearbox unit.

To re-attach the motor assemblies, align the bottom tube rail with the tube of the motor assembly and push firmly home. Re-tighten fully the knurled locking knob A.

Do the same for both sides. For ease of operation, it is advisable to re-attach the motor assemblies as the first operation in the reassembly of the wheelchair after transportation.



NOTE
The disassembly and reassembly of the motor assemblies can be handled and attached easier if the chair is carefully tipped onto the front, taking into account that the leg rests are not attached.

The chair can be transported disassembled safely in a suitable vehicle. Reversing the above procedures will make your chair ready at your destination.

14.2 Drive wheel removal

To remove the rear drive wheels for puncture repairs carefully follow these instructions.

Release the four bolts shown as A in the diagram (opposite page). Check the tyres for wear, if excessive, replacement is recommended.

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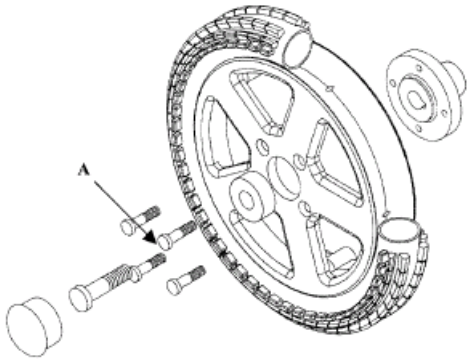
The wheel is a split rim. It is important that the bolts securing the rims together are NOT released if the tyre is pneumatic and INFLATED.

Upon reassembly tighten the fixing bolts securely. The wheel is alloy, do not over-tighten as this may damage the wheel rim.

If the tyre is being inflated with the wheel on the chair, ensure the wheel is off the ground during inflation.

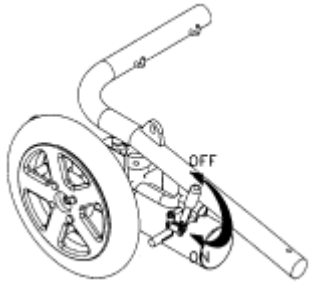
Inflate the tyre slowly to recommended pressure, ensuring an even fit around the rim.



Drive wheel locks (Manual brakes)

When transferring to and from the chair ensure the wheel locks are firmly ON and the motor drive is in the engaged position.

When transporting the complete chair in a vehicle, it is important that motor drive is engaged and the wheel locks are firmly ON. This will aid the use of the chair restraints and protect the motor/ gearbox from possible damage.



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15 Lateral Support

Fitting instructions

NOTE:
The lateral supports can only be fitted to the firm upholstered backrest assembly (Viscount seating).

To attach the lateral supports to the back of the backrest assembly follow these instructions.

Remove the existing pan-head screws from the top of each flange shown in Fig 1. Marked (A). The lower screws of each flange remain in place.

Fig 1.

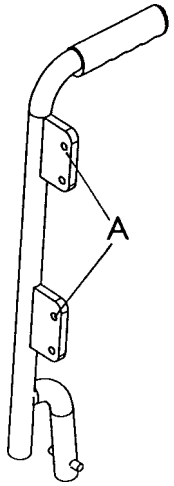
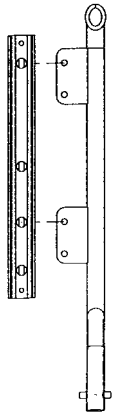


Fig 2.

Line up the support rail with the holes in the backrest as shown in Fig 2



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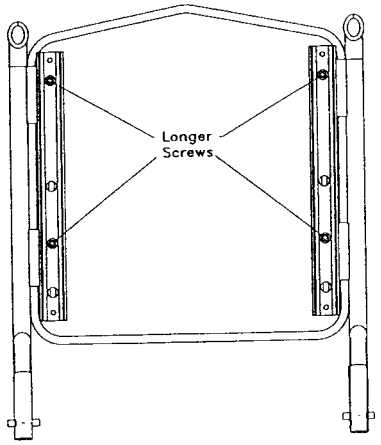
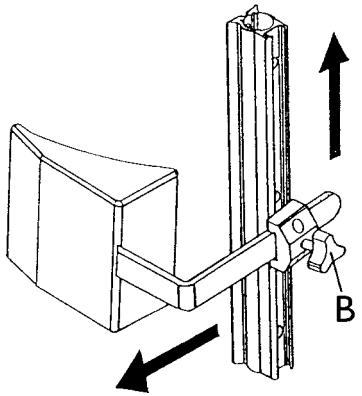
With the longer screws provided attach the support rail to the backrest through the flanges into the screw inserts. Do not screw into the backboard. Tighten securely, but do not overtighten as this may damage the screw-threaded inserts.



With the support rails secured, slide the lateral support into the support rail from the bottom. Adjust to the occupant's requirements and firmly tighten the hand wheel (B).



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16 Tray Assembly

NOTE
Ensure that the joystick control unit is switched OFF before fitting, removing or adjusting the Tray assembly.

The tray assembly comes ready assembled and is designed to fit to either the left or right hand side of the wheelchair.

The cut-out section is to accommodate the Joystick Control unit and determines which side the tray is fitted i.e. Joystick Control fitted to the right hand side, therefore the tray fixings will be fitted to the left hand side, and vice-versa.

Follow these simple instructions to fit:

1. Remove the two screws A holding the arm pad to armrest support tube B.
2. Fit the slide mounting tube C beneath the armrest support tube using the existing screws, (see diagram). Tighten the screws securely, (do not over tighten as this will damage the T-nut inserts within the arm pad).
3. Loosen the wing screw D and slide the tray support tube extension into the slide mounting tube C.
4. With the occupant seated in the chair, adjust the tray to a comfortable working position, tighten wing screw D.
5. Side to side lateral adjustment can be achieved by loosening the 4 screws E and sliding the tray surface to the required position.
6. Ensure the tray is firmly positioned, level and central to the occupant's requirements.

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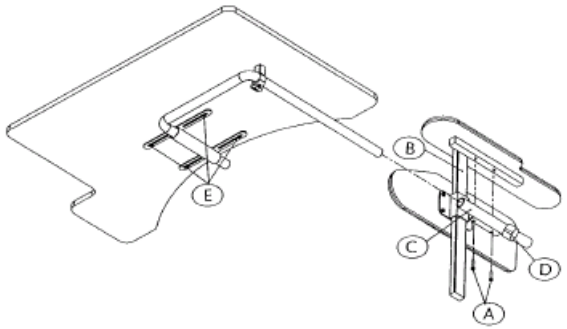
16.1 Operation - Removal (Switch OFF the Controller)

The Tray can be placed to the side or removed completely to allow the occupant to get in and out of the chair safely.

To do this, loosen the wing screw D, lift the tray and place to the side of the chair or remove completely by pulling the tray assembly forward.

Do not attempt to drive the chair with the tray placed to the side as this may be hazardous to the occupant and other people.



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17 Charging Batteries

The battery charger supplied with the wheelchair was developed to charge the batteries fitted to these products. Using alternatives will damage the batteries which are fitted as standard and invalidate the warranty on these components.

The charger and electronic controller are designed to prevent the wheelchair operating during the charging process.

Refer to the operating instructions supplied with the battery charger for a detailed description of the battery charging.

If the mains lead needs to be extended, make sure an approved adaptor is used. DO NOT extend the charger lead to the chair.

Ensure that both battery charger leads are safely routed so that they cannot be tripped over. When charging is completed, safely stow the leads away to avoid danger when driving away.

17.1 Batteries

The batteries fitted as standard to the wheelchair are sealed 'Gel' batteries and therefore cannot be spilled like conventional 'wet' batteries. Keeping the chair working to its maximum potential means that the batteries must be cared for and correctly charged. Nightly re-charging is necessary if the chair has been used during the day to ensure that the chair is ready for use the following day. A separate booklet is supplied as a guide to the care and performance of the batteries and charger.

Powered wheelchair batteries do not maintain a constant full battery charge level as an automobile battery; therefore, a shorter battery life can be expected. For maximum battery life maintain batteries as described.

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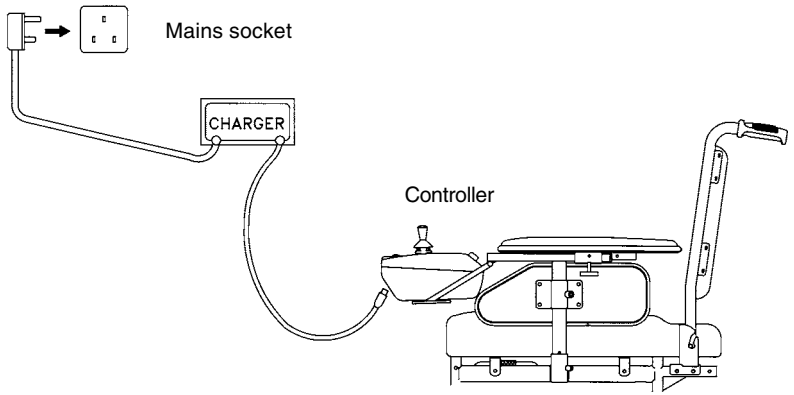
Plug the charger plug into the charger socket at the front of the controller.



Pollution from improper disposal

Have your batteries installed by a properly trained powerchair technician. Used batteries must NOT be disposed of by means of a Domestic Refuse Disposal Unit (Dustbin) etc. All used batteries should be recycled through an approved source. Please contact your dealer for correct advice.

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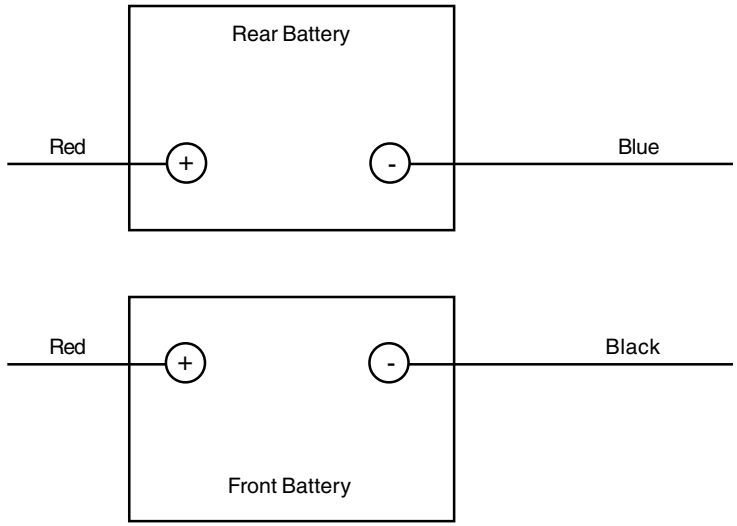
Battery Connections

See diagram.

The chair is fitted with 2 maintenance free batteries.

It is recommended to contact your Authorised Dealer for replacements.



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18 Keeping Your Chair in Good Condition

Your powerchair will benefit from periodic inspection, adjustment and replacement of worn parts. Regular maintenance will enhance:-

Reliable performance.

Safety.

Extended battery life.

Confidence in operation.

Low operating costs.

You can help keep your chair in good condition by following a simple guide to home maintenance.

Chrome/paintwork

This should be dried after contact with moisture. Clean once a month with a good quality auto-wax. Do not use abrasive cleaners such as chrome cleaner or scouring cleaners as these will scratch the finish.

Do not store your chair in damp conditions.

Upholstery

The upholstery on the powerchair is vinyl or “Plush” cloth material. Occasionally wipe with a damp cloth moistened with soapy water. Do not use abrasive or chemical cleaners as this may damage the fabric or vinyl coating.

Vinyl upholstery will become hard and prone to cracking if the special coating, which is applied to

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maintain flexibility is removed by the abrasive, chemical cleaners or solvents.

Ultra-violet light can also reduce the life of the upholstery coating. This is a normal ageing process, necessary precautions should be taken to guard against periods of long-term exposure to sunlight.

The result of these conditions cannot be covered by the specified warranty period.

Batteries

Keep your batteries well charged (see ‘advice on batteries and battery charging’ booklet). Keep batteries in a dry, frost-proof place. Be sure battery terminals remain tight and not corroded.

Footrests

Footrests are easily adjusted for height, clamp nuts must be securely tightened. Do not stand on the footplates.

Cables and Connections

On a weekly basis, inspect all plug connections to be sure they are securely attached. A visual inspection is usually adequate. Ensure locking safety catch operates correctly and secures motor plugs.

Inspect all wires for worn insulation. If any are found they should be replaced immediately. Make sure cables and wires are secured, and that they are routed away from any moving parts.

Tyres

Check the tread on your tyres regularly. Tyre pressure - inflate to recommended pressure as indicated in the technical information section. Do not exceed the maximum air pressure indicated on the tyre. Moulded tyres do not require pneumatic pressure, check periodically for wear.

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Controller and charger

Servicing of the controller and charger should only be carried out by your local approved dealer.

Do not attempt to open the units. Broken seals will invalidate the warranty.

Brakes

We strongly recommend every 6 months to check the function of the electronic brakes and wheel - locks adjustment. (This service may not be free of charge).

Motors

The motors are fitted with long life brushes. These should be inspected for wear at twelve months or more frequently if you use the chair daily for long periods. The brushes should be replaced when they have worn down to 8mm in length.

Do not overload the motors in prolonged stall conditions. If the chair is used continuously for long periods, pause periodically to allow the motors to ‘cool down’.

Drive wheels

The dis-engage facility is simple to operate following the recommended instructions. Recommended correct use will maintain safety and ease of operation.

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Freewheel Operation

To push the power chair by hand in the event of a fault or battery failure, or simply to move it WITH NO OCCUPANT in it, the two motor/gearbox units can be declutched from the rear wheels. First ensure that power is switched OFF on the joystick box.

CAUTION

- *Freewheel operation is only intended for short-term use in SPECIAL CIRCUMSTANCES, NOT as a regular or permanent mode of power chair movement. In freewheel mode the power chair is NOT secured by the electromagnetic brakes, as both brake systems are out of action during this time.*
- *Before you attempt to drive the chair, ensure that BOTH declutch levers are FULLY returned to normal operating position.*

Driving Practice

With the joystick you now control speed (within the selected Drive Mode) and direction of the power chair. The more you move it forward, the faster you travel. To reverse, pull the joystick backward. By moving the joystick left or right (while the power chair is moving forward or backward) you steer the power chair. Push the joystick full left or right, and the power chair will turn around within its smallest turning circle. To slow down, guide the joystick towards its centre (neutral) position. If you have to stop in an emergency, simply release the joystick. It will automatically snap back to neutral and the power chair will come to a smooth halt. As a last resort ONLY press the On/Off switch which will serve as an emergency off switch. Once at a standstill, the power chair is instantly locked by the electromagnetic parking brakes, so that it is perfectly safe while it is stationary, even on an incline.

Shutdown - Parking

For security shutdown, parking indicator lighting and the adjustments of electrical options, refer to the Operating Manual supplied with the joystick.

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19 WARRANTY STATEMENT

GENERAL CONDITIONS OF LIMITED WARRANTY - POWERED PRODUCTS

Models covered - Spectra Plus Seat Riser

Invacare will repair or replace, at our option, to the original purchaser, free of charge, any part found upon receipt and examination by an authorised representative of Invacare to be defective in material and/or workmanship.

36 MONTHS WARRANTY - Items covered for thirty six months from the date of purchase. Structural steel frame components including, side-frame, cross brace, footrest, back post and frame joints. (Excluding hand grips).

18 MONTHS WARRANTY - Items covered for eighteen months from the date of purchase.

MOTORS - including Motor Brake for electrical function.

Eighteen months warranty with the exception of damage occurring to the commutator of the motor as a result of not replacing motor brushes after heavy wear. Motor brushes and motor brake pads are wear items and will not be warranted.

CONTROLLERS/CHARGERS - Eighteen months warranty for electrical function with the exclusion of rubber gaiters and related wiring looms.

BATTERIES - Warranty is covered by the battery manufacturer for a period of twelve months. Only batteries which have been tested, using approved battery manufacturer test equipment e.g. Battest 12202 or Astratec, and confirmed to be defective will be replaced. Reduced performance will be assessed as to the possible cause and the feasibility of a warranty claim. Only batteries supplied by Invacare are covered by the above conditions.

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This warranty also excludes the following:

1. Upholstery materials are wear and tear items and are only warranted against genuine manufacturing and material defects.
2. Tyres, including in-filled types, and tubes are wear and tear items and are not warranted.
3. Damage caused by battery fluid spillage or leakage.
4. Damage caused by:
    a. Abuse, misuse, accident or negligence.
    b. Improper operation, maintenance or storage.
    c. Commercial use or use other than normal.
    d. Repairs and/or modifications made to any part without specific consent from Invacare.
    e. Circumstances beyond the control of Invacare.
5. Labour, service calls and other charges incurred in the repair of the product unless specifically authorised by Invacare.

The foregoing warranty is exclusive and in lieu of all other express warranties, implied warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, and shall not extend beyond the duration of the express warranty provided herein. Invacare shall not be liable for any consequential or incidental damages whatsoever.

This warranty does not detract from but is in addition to your legal rights.

Warranty service can only be performed by an Invacare Authorised Dealer/Approved repairer.

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Approved Accessories Available

Puncture Proof Tyres

Tray

Detachable, powered reclining backrest

Elevating Legrests

Please keep a note of the date of purchase and serial number of your power chair.

Please quote this number in all correspondance and service requests.

Serial No.:	Date of Purchase:

As with all powered motor vehicles we recommend that you take out maintenance insurance cover for out of warranty service requirements. Contact your authorised INVACARE dealer for advice and suitable options available.

The power chairs shown and described in this user manual may not be exactly the same in every detail as your own model. However, all instructions are still entirely relevant, irrespective of detail differences.

The manufacturers reserve the right to alter without notice any weights, measurements, or other technical data shown in this publication.

All figures, measurements and capacities shown in this user manual are approximate and do not constitute specifications.

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Part No. 1446685 GB 1005